

Implicit Differentiation

HW 2-13

Find $\frac{dy}{dx}$.

1) $5x^2 = -4y^3 - 3y^2 + 2$

2) $2x^3 + 3y^2 + 4x = 5$

3) $\sin y + 3 = y + \cos x$

4) $\cos(y^3) = x^3 + 2x + 5$

Find $\frac{d^2y}{dx^2}$.

5) $y^2 = x^2 + 2x$

6) $x^2 y^3 = 1$

7) Find the slope of the curve $xy^2 + 2xy = 8$ at the point $(1, 2)$.

8) Find the equations of the tangent line and the normal line to $2x^3 - x^2y + y^3 - 1 = 0$ at $(2, -3)$.

9) Find the points at which the graph of $4x^2 + y^2 - 8x + 4y + 4 = 0$ has a vertical tangent line.

10) Find the points at which the graph of $x^2 + xy + y^2 = 6$ has a horizontal tangent line.